

AMENDMENTS TO THE CLAIMS

The claims in this listing will replace all prior versions, and listings, of claims in the application.

1. (Canceled)

2. (Currently amended): A ~~The~~ micro electro discharge machining method according to claim 1, further comprising

~~producing~~ providing a ~~the~~ tool electrode is with a pattern of a plate electrode by electro discharge machining the tool electrode with the plate electrode, the said plate electrode being provided with a plurality of holes in the pattern [[,]]; and

~~changing, during the electro discharge machining process, a relative distance between the tool electrode and the plate electrode is changed at a predetermined frequency and with a predetermined amplitude, and~~

~~outputting a discharge pulse in synchronization with the change in the relative distance between the tool electrode and the plate electrode~~

performing electro discharge machining on a workpiece with the tool electrode.

3. (Previously Presented): The micro electro discharge machining method according to claim 2, further comprising

providing multiple hole groups in the plate electrode, each hole group including a plurality of holes, and

producing the tool electrode by sequentially electro discharge machining using the multiple hole groups in the plate electrode.

4. (Canceled)

5. (Currently amended): A micro electro discharge machining apparatus,
comprising:

a tool electrode;

a circuit that generates pulsed electric discharge between the tool electrode and a
workpiece;

a first device that positions the workpiece in a XY-plane;

a second device that positions the tool electrode in a Z-direction orthogonal to the
XY-plane;

a vibration member that changes a relative distance between the tool electrode and
the workpiece at a predetermined frequency and with a predetermined amplitude; and

a controller that controls a discharge pulse in synchronization with the change in
the relative distance between the tool electrode and the workpiece such that the discharge
pulse is output when the relative distance between the tool electrode and the workpiece
becomes sufficiently small such that discharge is performed; and

~~The micro electro discharge machining apparatus according to claim 4, further~~
~~comprising:~~

a plate electrode provided with a plurality of holes configured to produce the tool
electrode;

wherein the plate electrode is positioned in the XY-plane by the first device;
the circuit generates pulsed electric discharge between the tool electrode and the plate electrode; and
the controller controls a discharge pulse in synchronization with the change in a relative distance between the tool electrode and the plate electrode.

6. (Original): The micro electro discharge machining apparatus according to claim 5, wherein the plate electrode is provided with multiple hole groups each including a plurality of holes.

7. (Canceled)

8. (Canceled)

9. (New): A micro electro discharge machining method, comprising:
producing a tool electrode with a pattern of a plate electrode by electro discharge machining with the plate electrode, the plate electrode being provided with a plurality of holes in the pattern;

changing, during the electro discharge machining process, a relative distance between the tool electrode and the plate electrode at a predetermined frequency and with a predetermined amplitude;

outputting a discharge pulse in synchronization with the change in the relative distance between the tool electrode and the plate electrode;

changing a relative distance between the tool electrode and a workpiece at a predetermined frequency and with a predetermined amplitude;

controlling a discharge pulse output in synchronization with the change in the relative distance between the tool electrode and the workpiece such that the discharge pulse output is generated when the relative distance between the tool electrode and the workpiece becomes sufficiently small such that discharge is performed; and

performing electro discharge machining between the tool electrode and the workpiece.